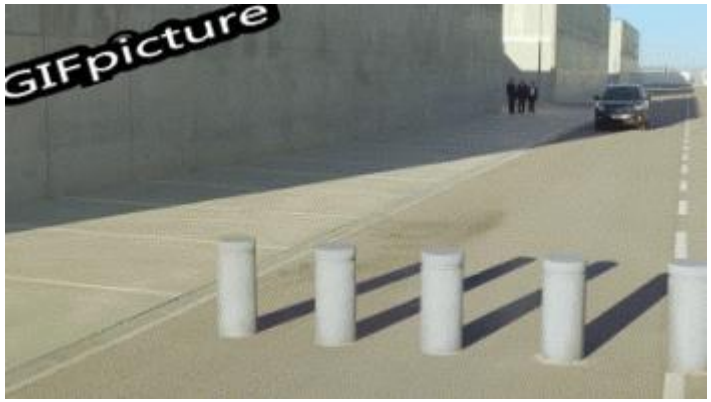
Computer Vision

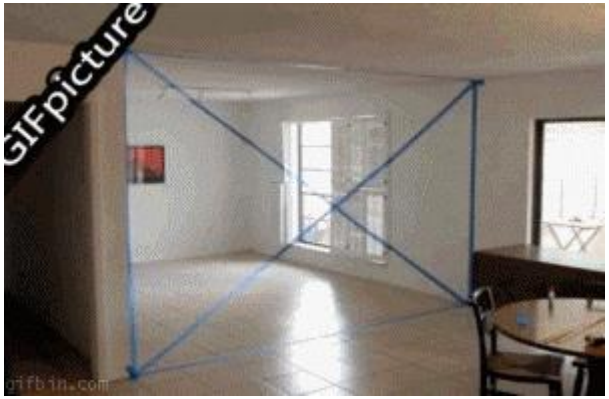
전자공학과
구형일

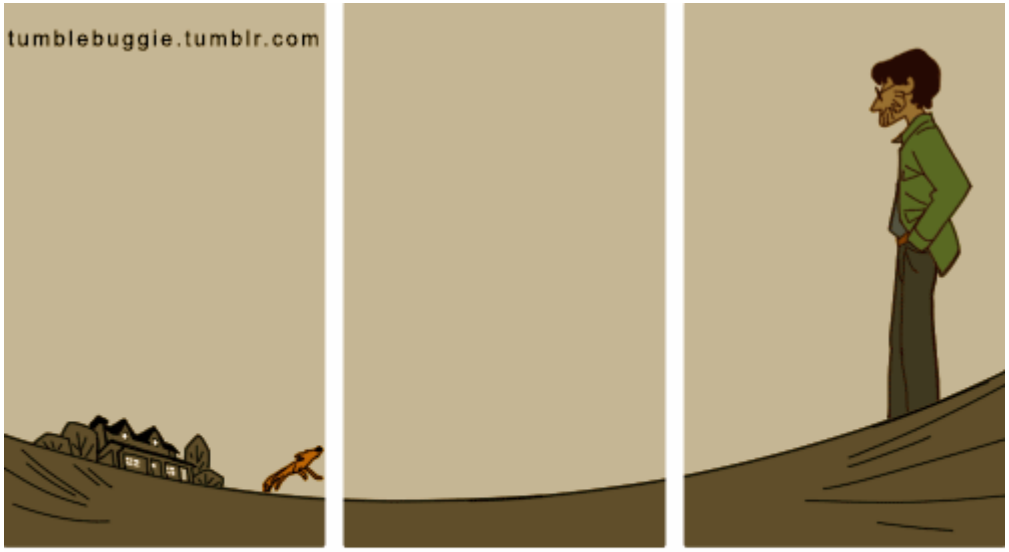
Terminator View

Challenges - Perspective projection

Challenges - Perspective projection

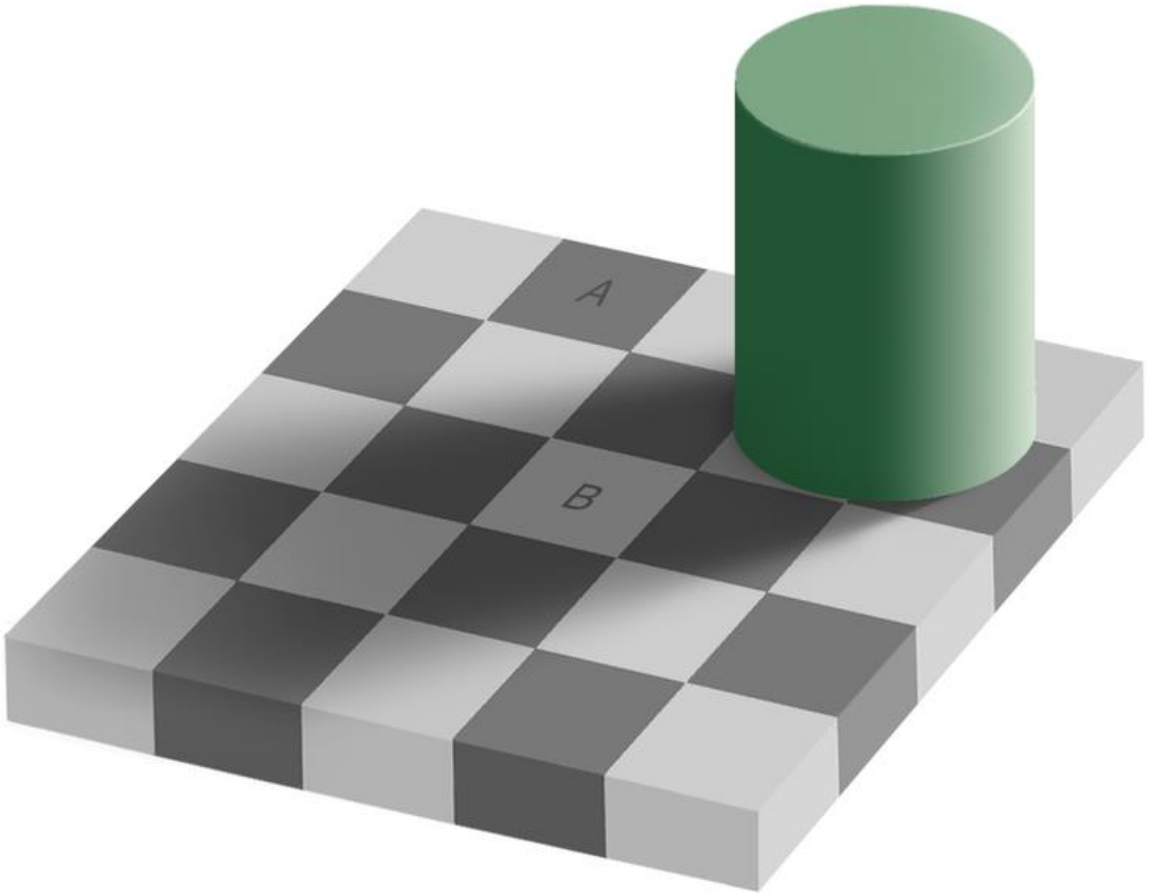

GIFpicture


GIFpicture
gifbin.com

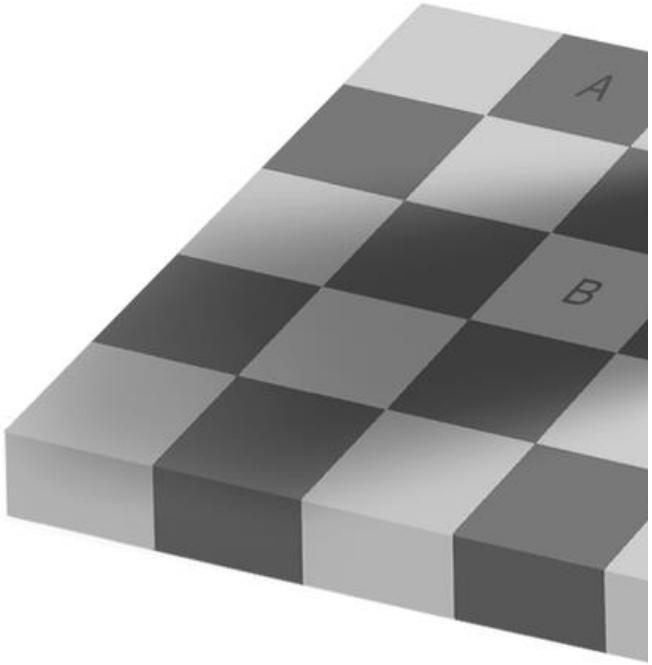


> At night I leave the lights on in my little house and walks across the flat fields. When I look back from a distance the house is like a boat on the sea. It's really the only time I feel safe.

Challenges - Checker shadow illusion



Challenges - Checker shadow illusion



Challenges - Checker shadow illusion

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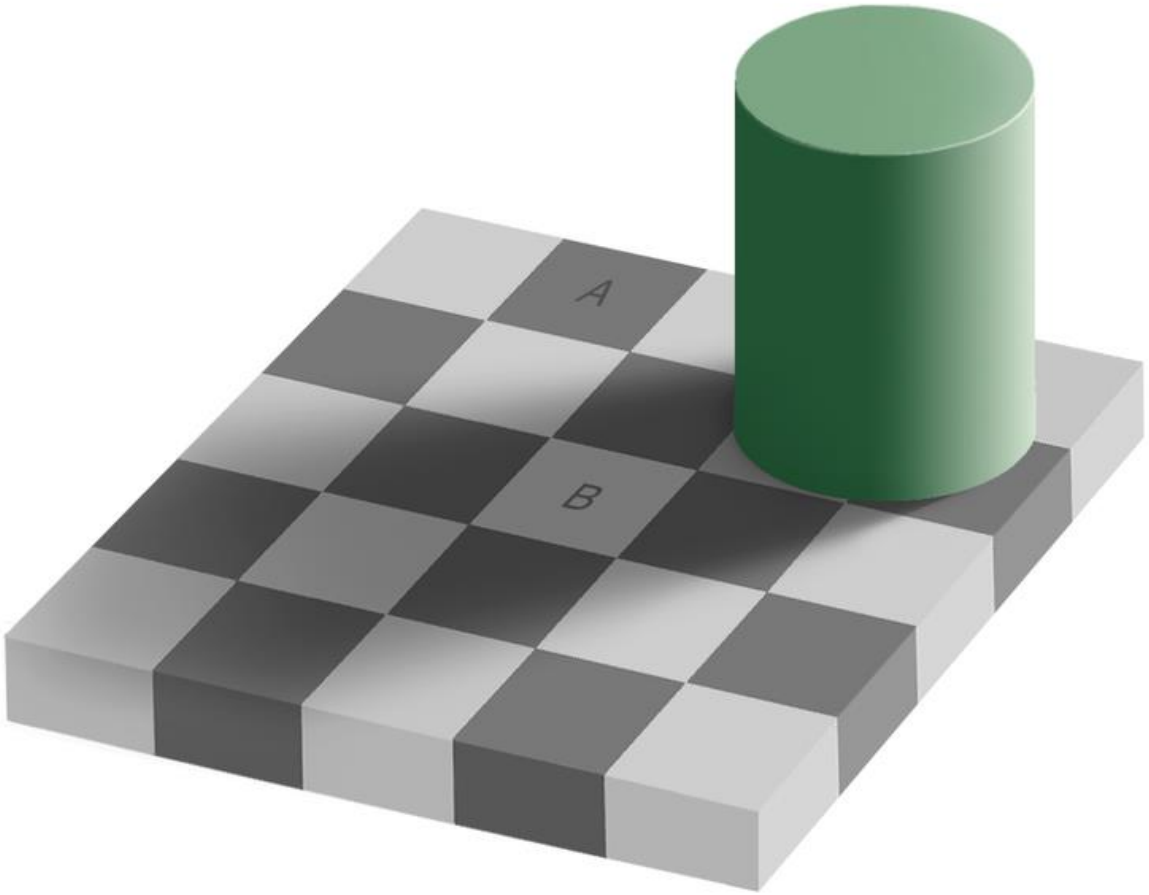


가까이오세요.

Research Areas

- Face/Fingerprint recognition

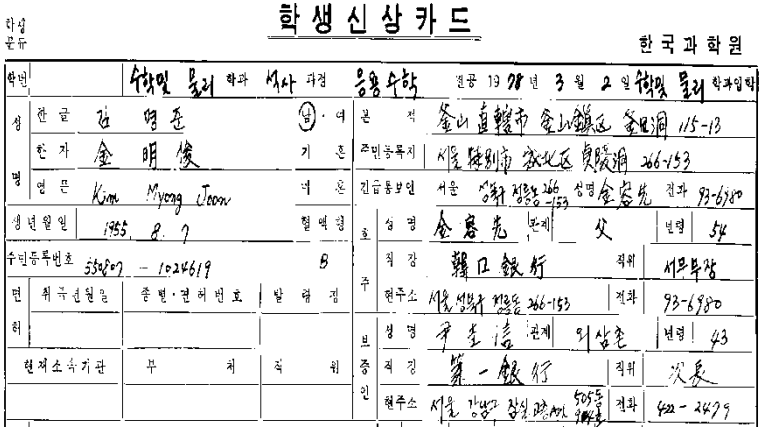
PERSONNEL
STEFANSKI MAREK
IMMEDIATE TARGET PRIORITY

다른 보안장치는
다 뚫는다 해도

Research Areas

- Text detection/recognition
  - Optical character recognition

Word lens (iPhone App) ☺


학생신상카드

한국과학원

필기체 인식 ☹

Research Areas

- Augmented reality
  - Object recognition + 3D structure

Sesame Street Augmented Reality Dolls ☺

Building recognition ☹

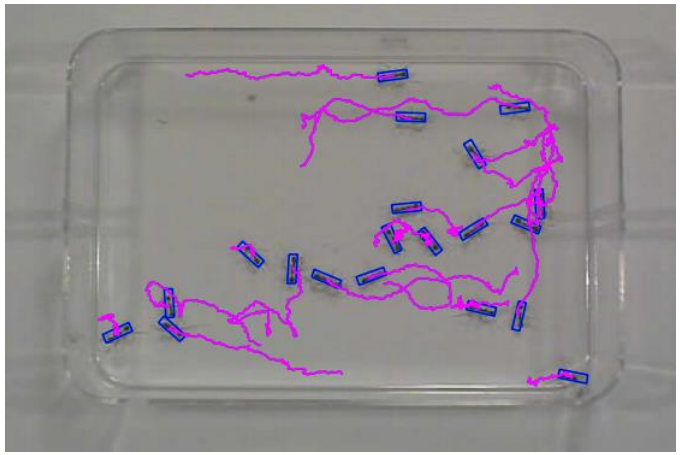
Research Areas

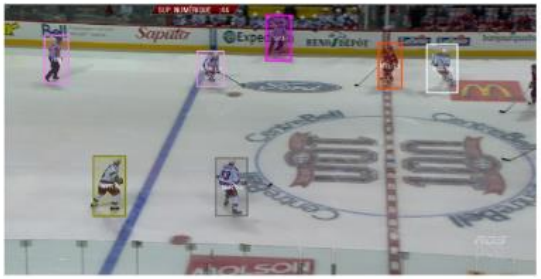
- Computational photography

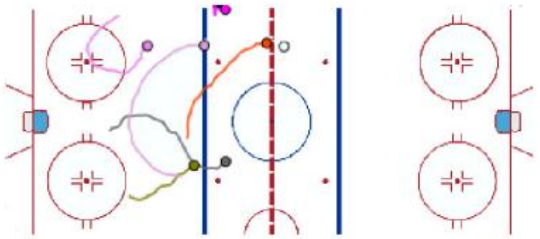
T 3

Research Areas

- Other research areas





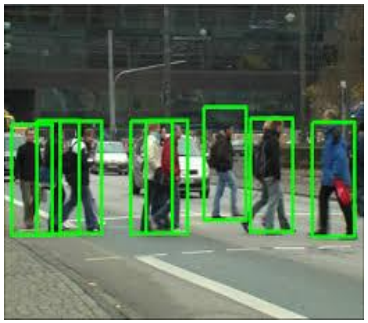


VISION TASKS

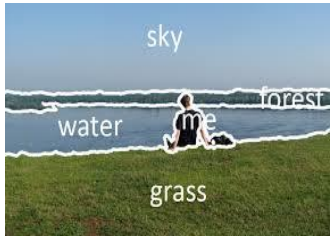
Vision tasks

Object recognition

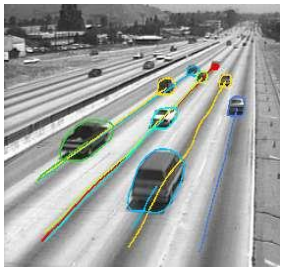
Object detection



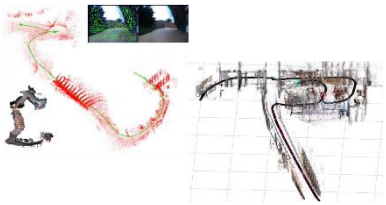
Semantic segmentation



Object tracking

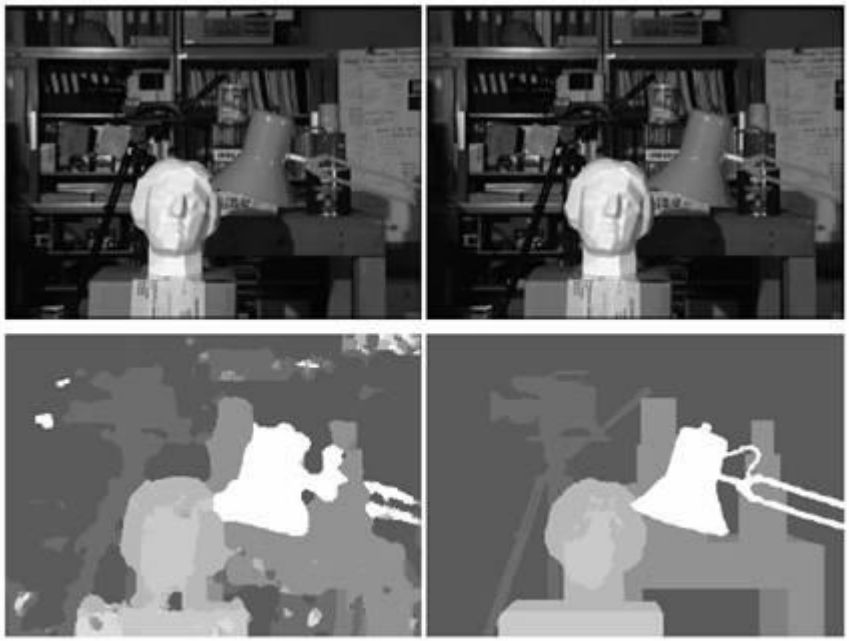


Visual SLAM

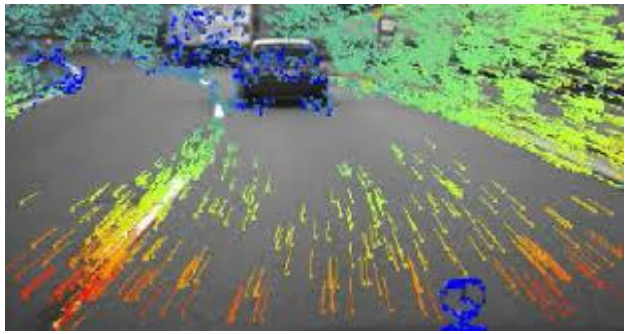


Vision tasks

Stereo matching



Optical flow



Semantic segmentation

- Building/road/sky/object/grass/water/tree

Clement Farabet, Camille Couprie, Laurent Najman and Yann LeCun: Learning Hierarchical Features for Scene Labeling, IEEE Transactions on Pattern Analysis and Machine Intelligence, August, 2013

Object tracking

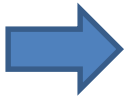
Yi Wu, Jongwoo Lim, and Ming-Hsuan Yang, "Object Tracking Benchmark",
IEEE Transactions on Pattern Analysis and Machine Intelligence, 2015

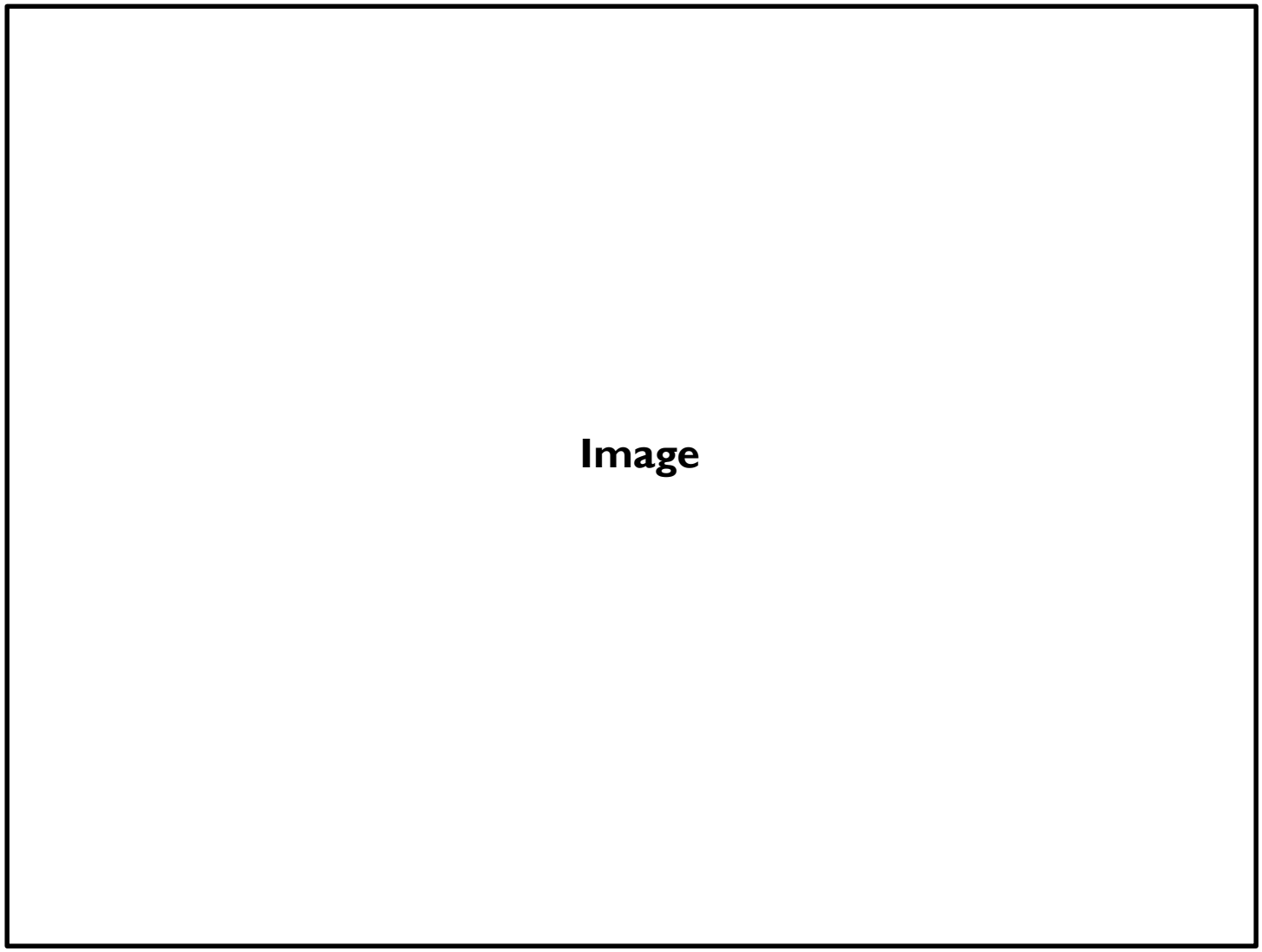
Visual SLAM

Computer Vision
Image Understanding …

Why understanding images is hard

Very many sources of variability



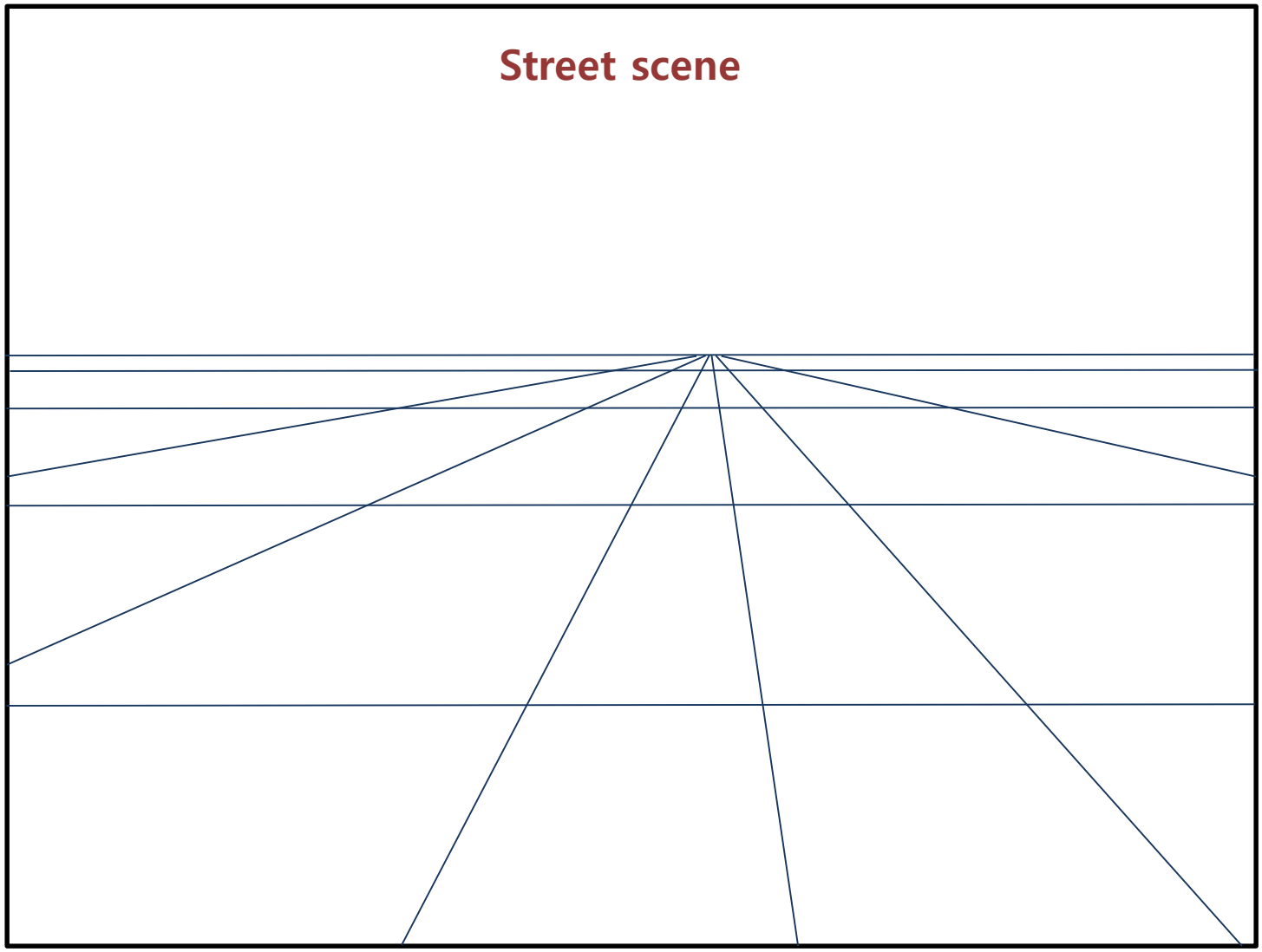


From J. Winn, MSR

Sources of image variability

Scene type

Scene geometry



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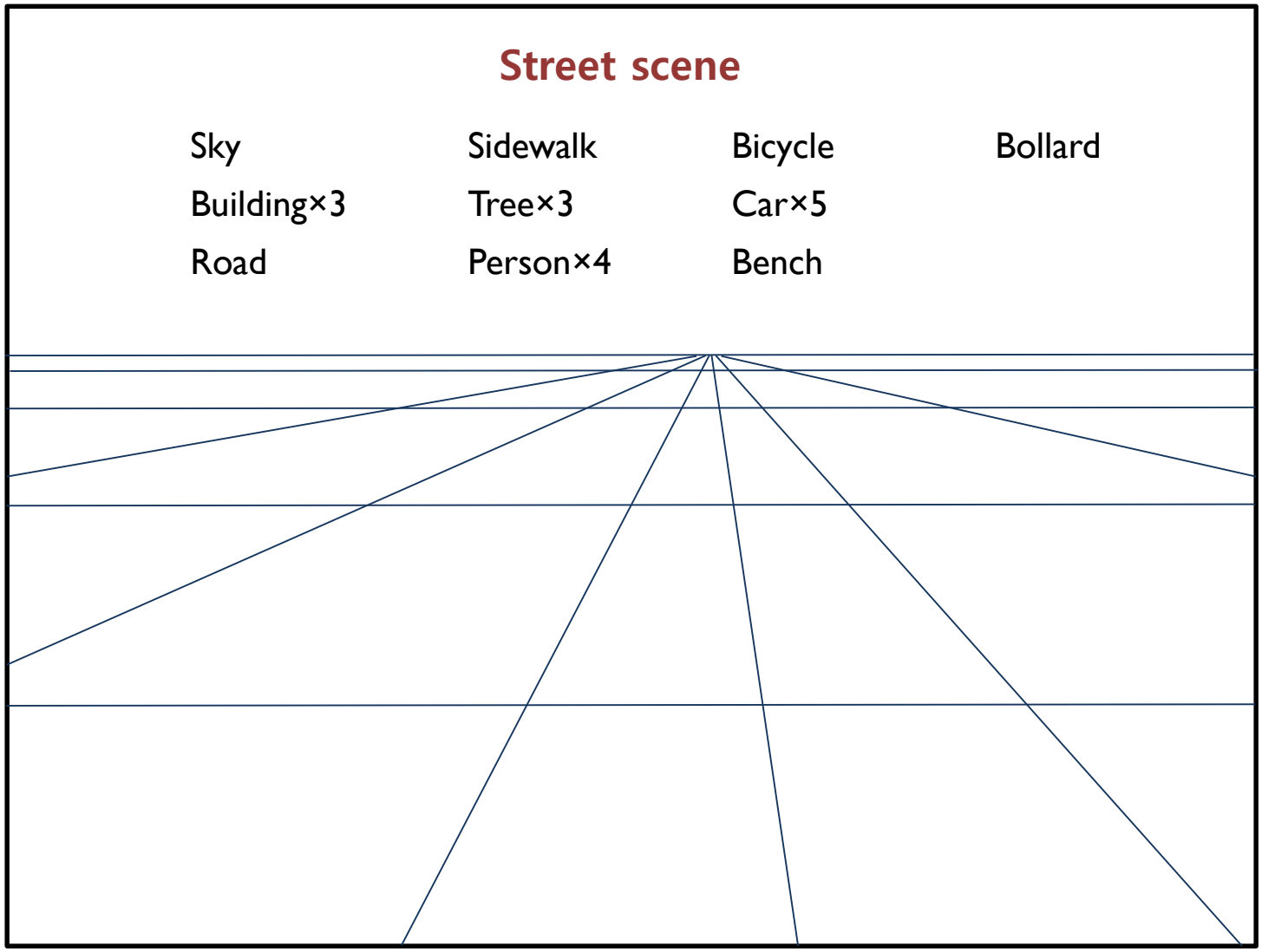
Object classes



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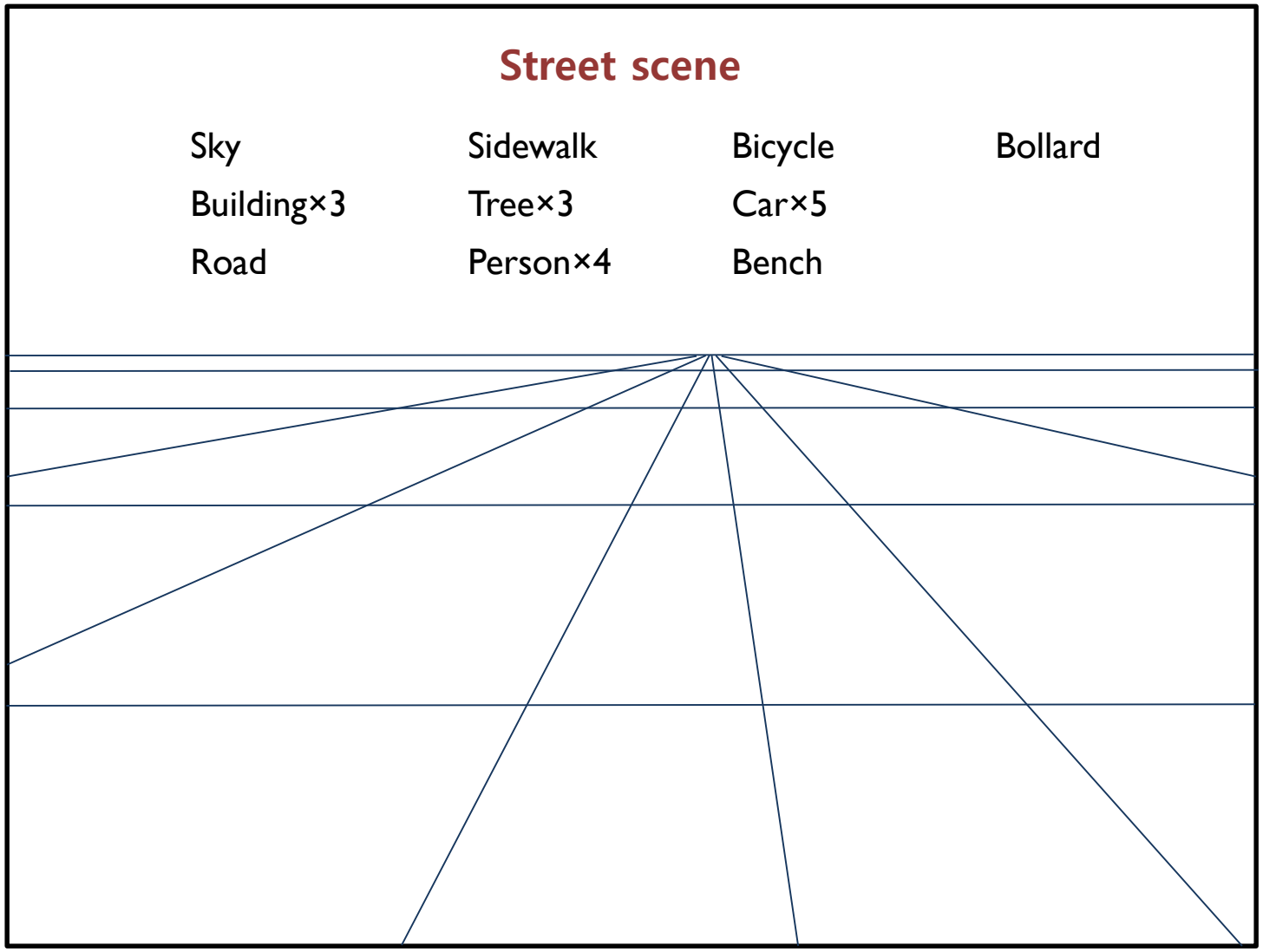

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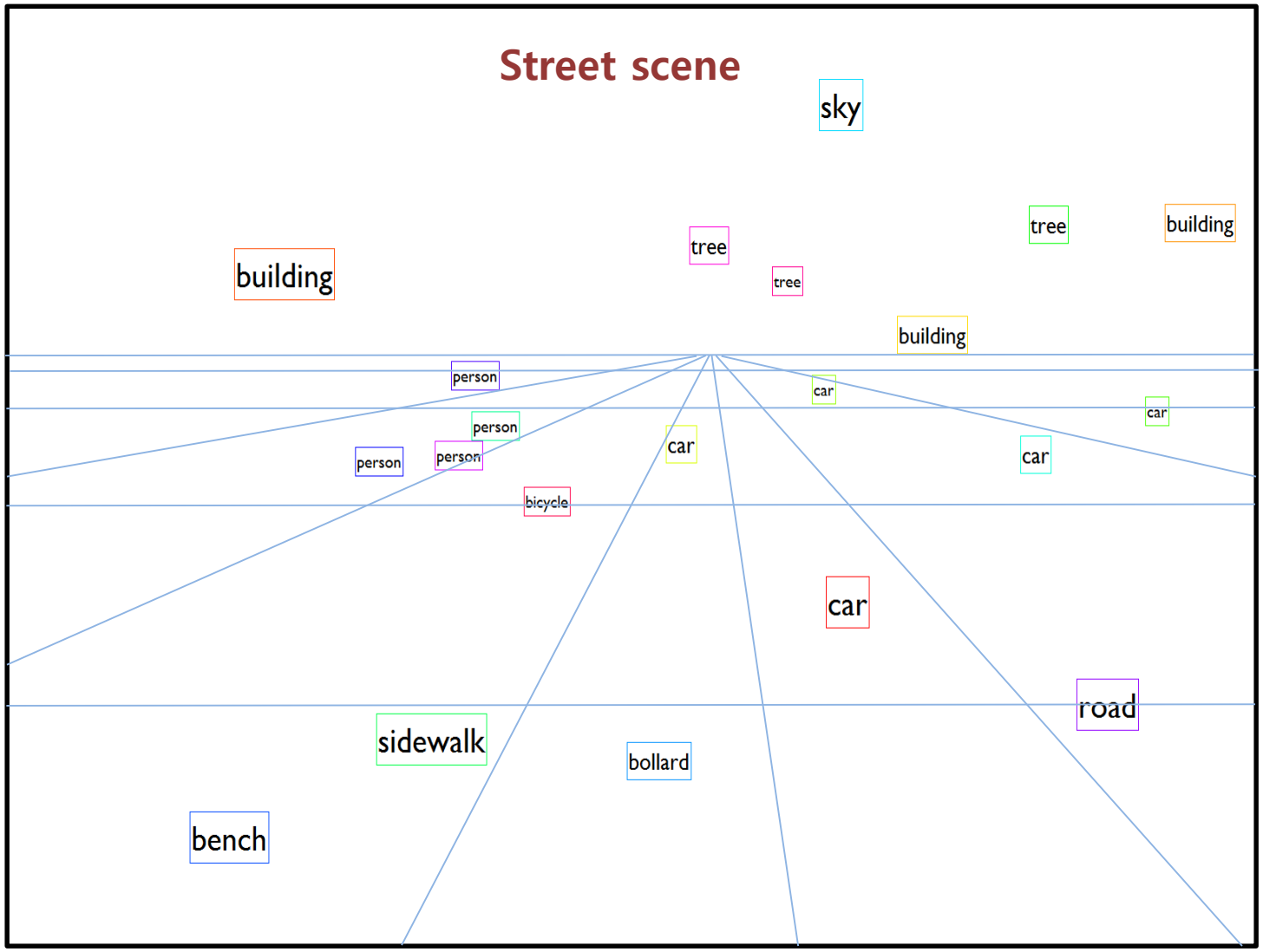
Object shape



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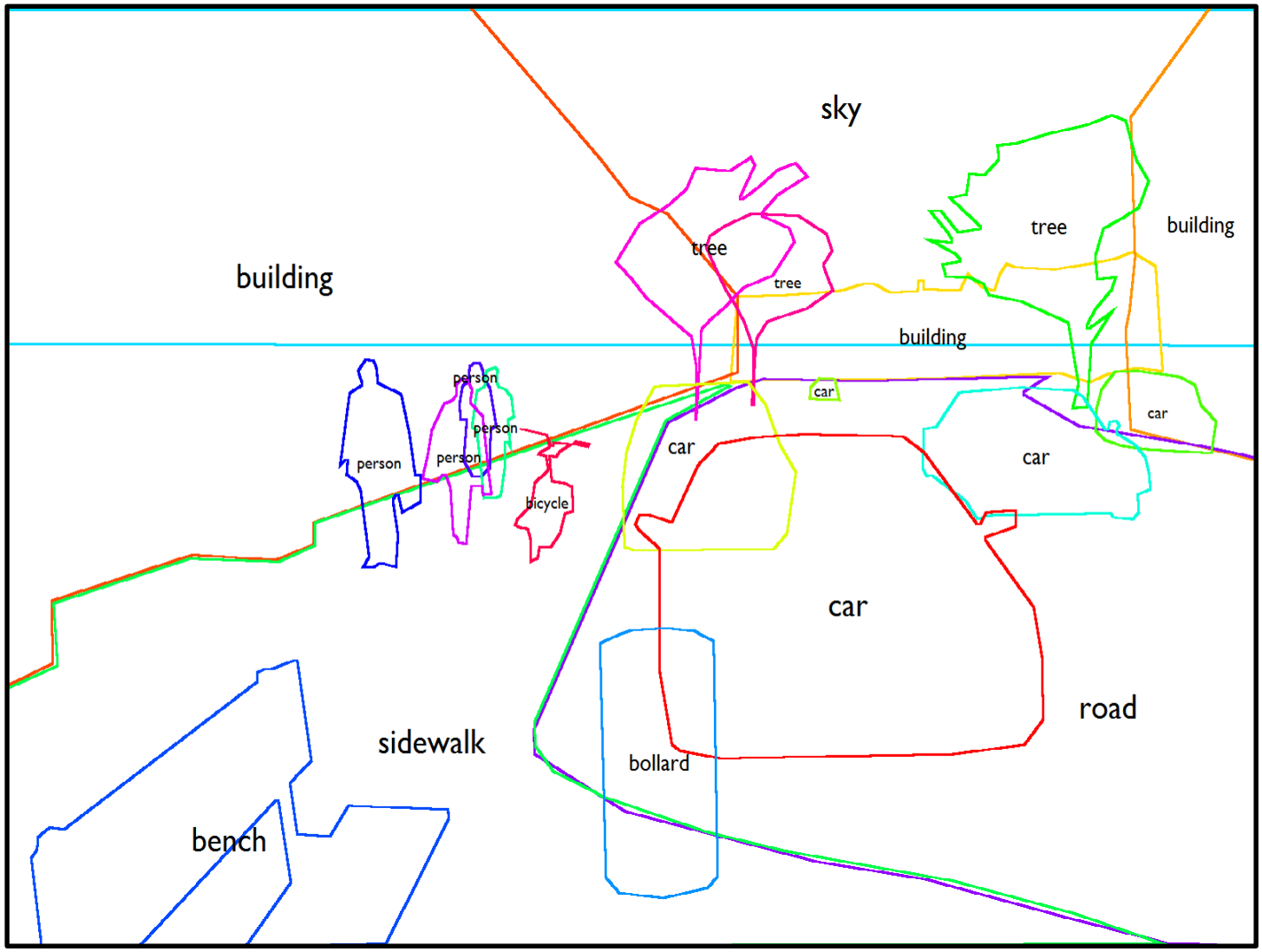
Object shape

Depth/occlusions



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Scene type

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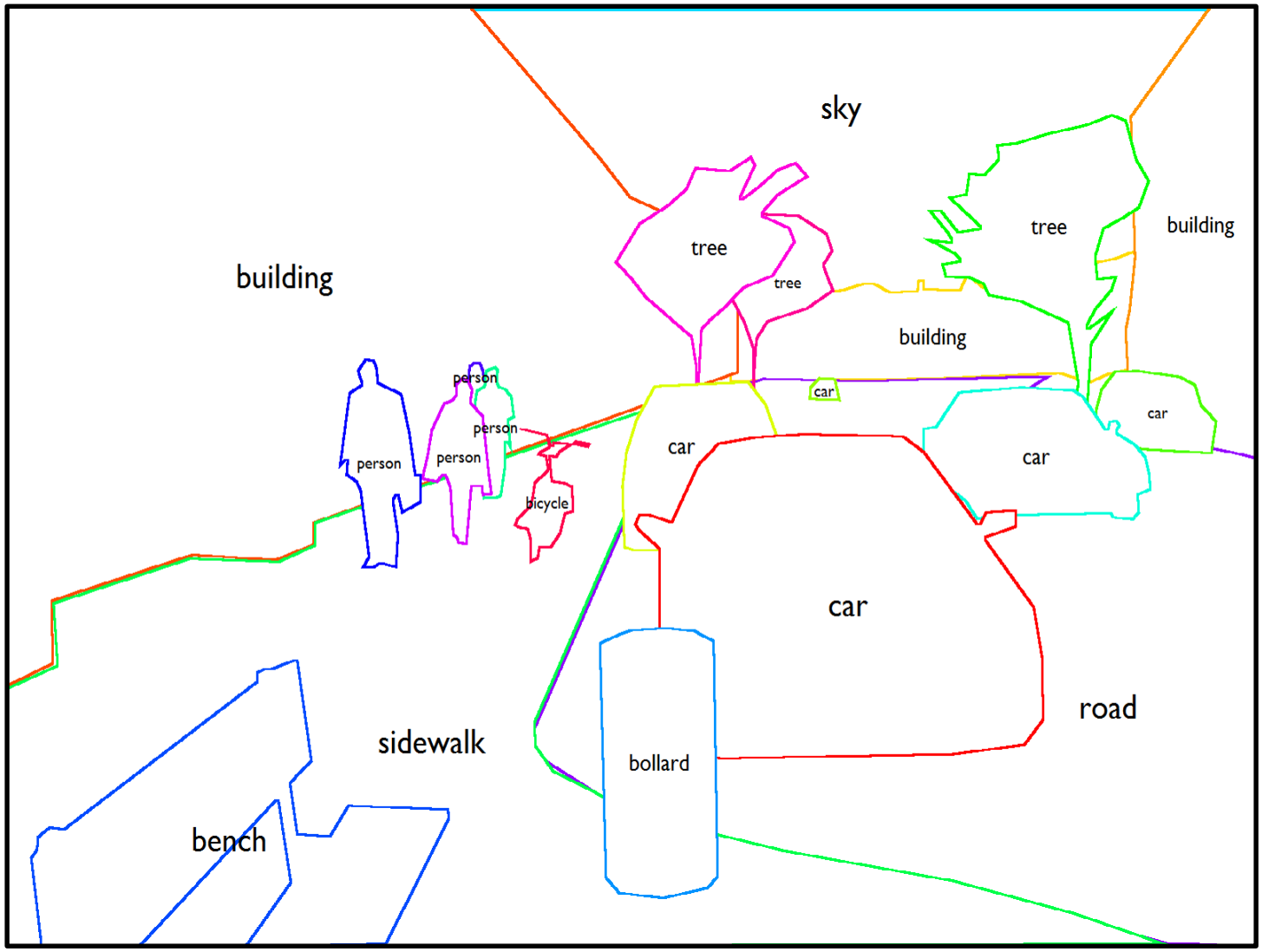
Depth/occlusions

Object appearance



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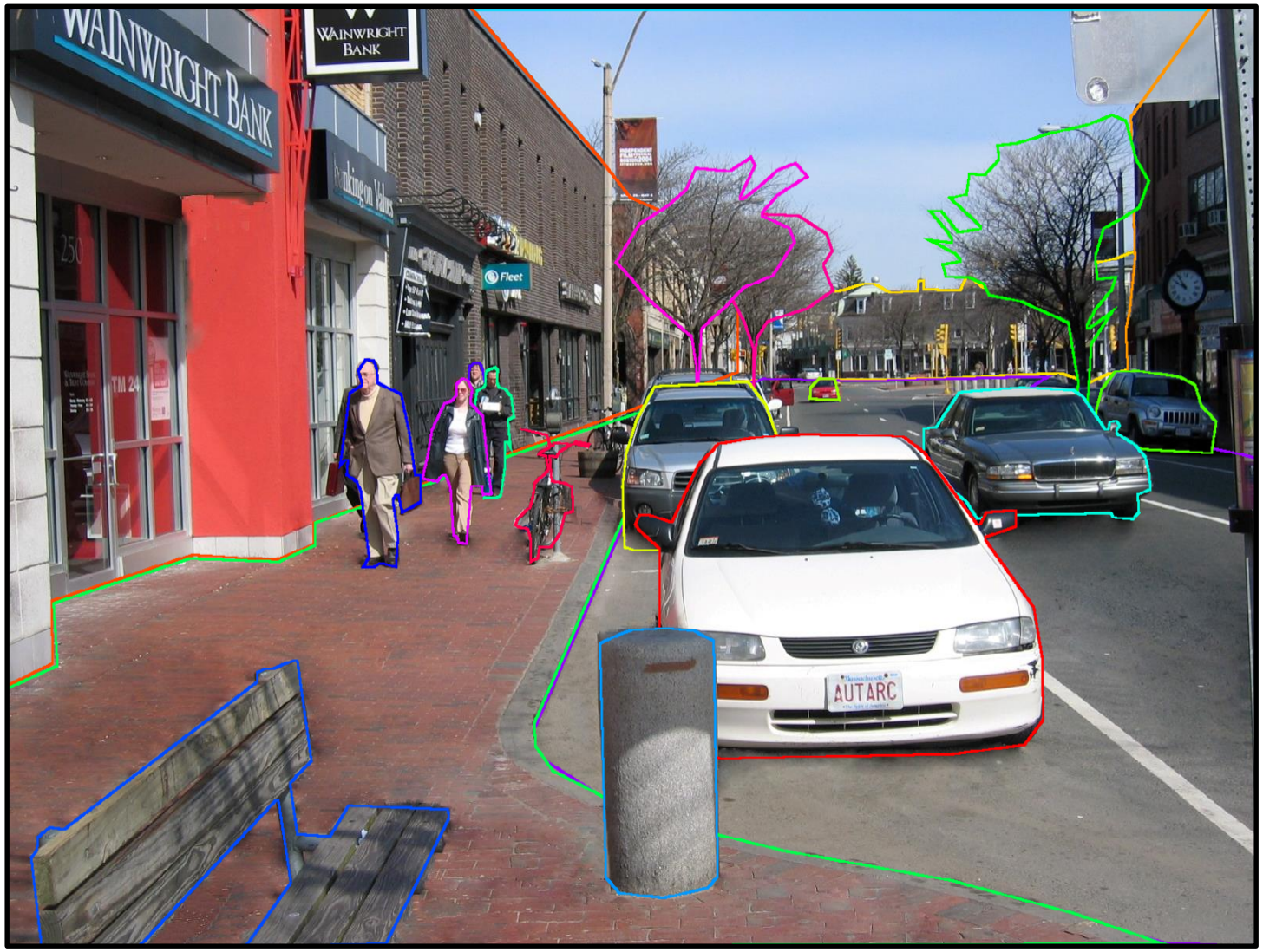
Illumination

Shadows



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Sources of image variability

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Shadows

Motion blur

Camera effects

From J. Winn, MSR

Computer vision problems

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Scene geometry

Object classes

Object position

Object orientation

Object shape

Depth/occlusions

Object appearance

Illumination

Shadows

Motion blur

Camera effects